

### **REMARKS**

A first Office Action was mailed on July 12, 2004. Claims 1 – 16 are pending in the present application. Applicant amends claims 1, 3 and 6 – 8 to address informalities. No new matter is introduced.

### **OBJECTION TO DRAWING**

Figures 3, 4, 5A, 5B, 6A, 6B, 7A, 7B, 8A, 8B, 10, 11, 14A, 14B, 15A and 15B are objected to for failing to include labels for certain components of the drawing. Figures 1 – 3 are objected to for failing to be labeled as “Prior Art”. Applicant proposes associated revisions to Figures 1 - 3, 4, 5A, 5B, 6A, 6B, 7A, 7B, 8A, 8B, 10, 11, 14A, 14B, 15A and 15B to address these objections, as indicated in the attached drawing replacement pages, provided in both marked-up and clean copies. Applicants respectfully request that the proposed revisions be accepted, and that the objections be withdrawn.

### **REJECTION FOR NON-STATUTORY DOUBLE PATENTING**

Claims 1- 16 are rejected under the judicially-created doctrine of obviousness-type (non-statutory) double patenting as being unpatentable over claims 1 – 18 of U.S. Patent No. 6,654,618 to Kobayakawa. The Examiner finds that, although the claims of the present application and Kobayakawa are not identical, they are not patentably distinct. In particular, the Examiner finds that the claims of the present application are broader than the claims of the patent. Applicant respectfully disagrees, and traverses the rejection.

In independent claims 1 and 3 of the present application, Applicant claims:

1. . A deviation compensation apparatus compensating for at least one of an amplitude deviation and a phase deviation occurring in signals during transmission thereof through N transmission paths, where N denotes a natural number larger than 1, comprising;

a compensating part compensating for deviations on M transmission paths of said N transmission paths, where M is a natural number and  $M < N$ ; and

a pre-deviation signal combining part combining signals on the N transmission paths before having the deviations applied thereto,

wherein said compensating part performs compensation for the deviations based on output of said pre-deviation signal combining part and the signals on the transmission paths to be compensated.

3. A deviation compensation apparatus compensating for at least one of an amplitude deviation and a phase deviation occurring in signals during transmission thereof through N transmission paths, where N denotes a natural number larger than 1, comprising;

a compensating part compensating for deviations on M transmission paths of said N transmission paths, where M is a natural number and  $M < N$ ; and

a post-deviation signal combining part combining signals on the N transmission paths after having the deviations applied thereto,

wherein said compensating part performs compensation for the deviations based on output of said post-deviation signal combining part and the signals on the transmission paths to be compensated.

Significantly, in each of independent claims 1 and 3, one of a pre-deviation signal combining part and a post-deviation signal combining part combine signals from N transmission paths, the output based on the signals from the N transmission paths being supplied to a compensating part that provides deviation compensation for just M of the N transmission paths, where M is a natural number and  $M < N$ . This feature is enabled by a compensating part that effectively discounts elements of the output that are irrelevant to the M transmission paths (see, e.g., page 13, line 17 through page 21, line 16 of Applicant's specification. Applicant respectfully submits that this claimed feature is

neither disclosed nor suggested by Kobayakawa, and that independent claims 1 and 3 are therefore patentably distinct from the claims 1 – 18 of Kobayakawa.

In accordance with this claimed feature, Applicant's invention provides a means for advantageously reducing the number of compensation circuits (for example, combining circuits, amplifiers, mixers and the like) over prior art antenna arrays. In addition, Applicant's invention enables deviation compensation to be flexibly divided among a number of independent circuits (for example, such as a field-programmable gate array, a digital signal processor, or the like). In this manner, wiring complexity can also be advantageously reduced over prior art systems.

Accordingly, Applicant respectfully submits that independent claims 1 and 3 are not made obvious by Kobayakawa, and are therefore allowable. As claims 2 and 4 - 16 each depend from one of allowable claims 1 and 3, Applicant further submits that claims 2 and 4 - 16 are allowable for at least this reason. Applicant therefore respectfully requests that the Examiner withdraw the rejection under the judicially-created doctrine of obviousness-type double patenting.

## CONCLUSION

An earnest effort has been made to be fully responsive to the Examiner's objections. In view of the above amendments and remarks, it is believed that claims 1 – 16, including independent claims 1 and 3 and the claims that depend therefrom, stand in condition for allowance. Passage of this case to allowance is earnestly solicited. However, if for any reason the Examiner should consider this application not to be in condition for allowance, he is respectfully requested to telephone the undersigned attorney at the number listed below prior to issuing a further Action.

Any fee due with this paper may be charged on Deposit Account 50-1290.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'T. Bean', is written over a horizontal line.

Thomas J. Bean

Reg. No. 44,528

**CUSTOMER NUMBER 026304**

KATTEN MUCHIN ZAVIS ROSENMAN

575 MADISON AVENUE

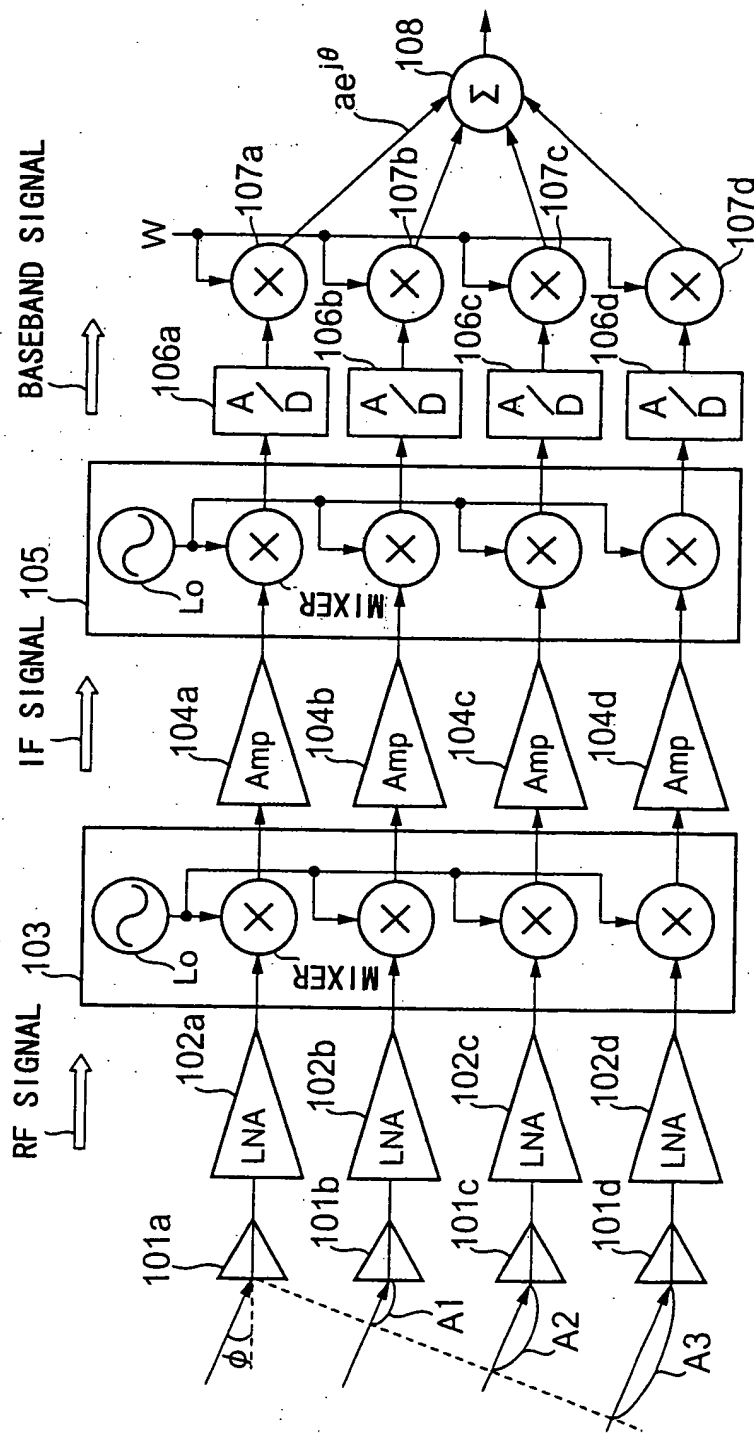
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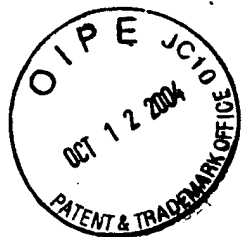
PHONE: (212) 940-8800/FAX: (212) 940-8776

DOCKET No.: FUJI 19.419 (100794-00175)

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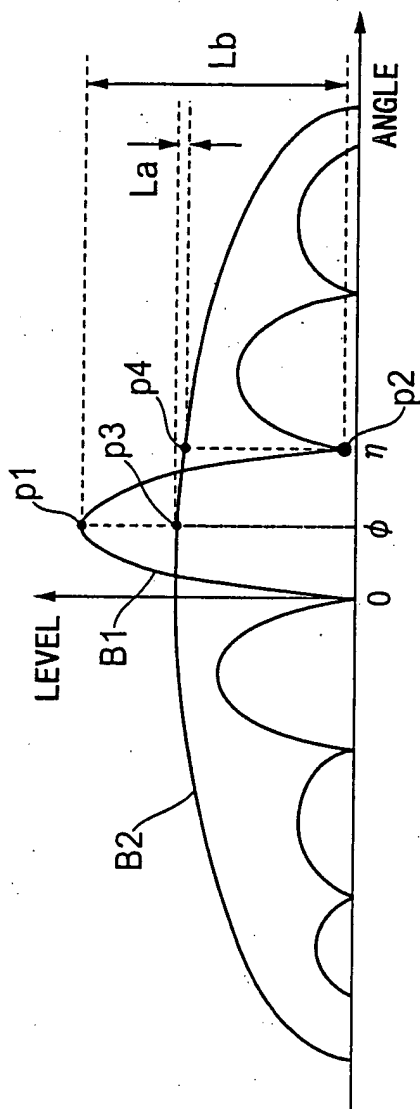
FIG. 1  
(PRIOR ART)



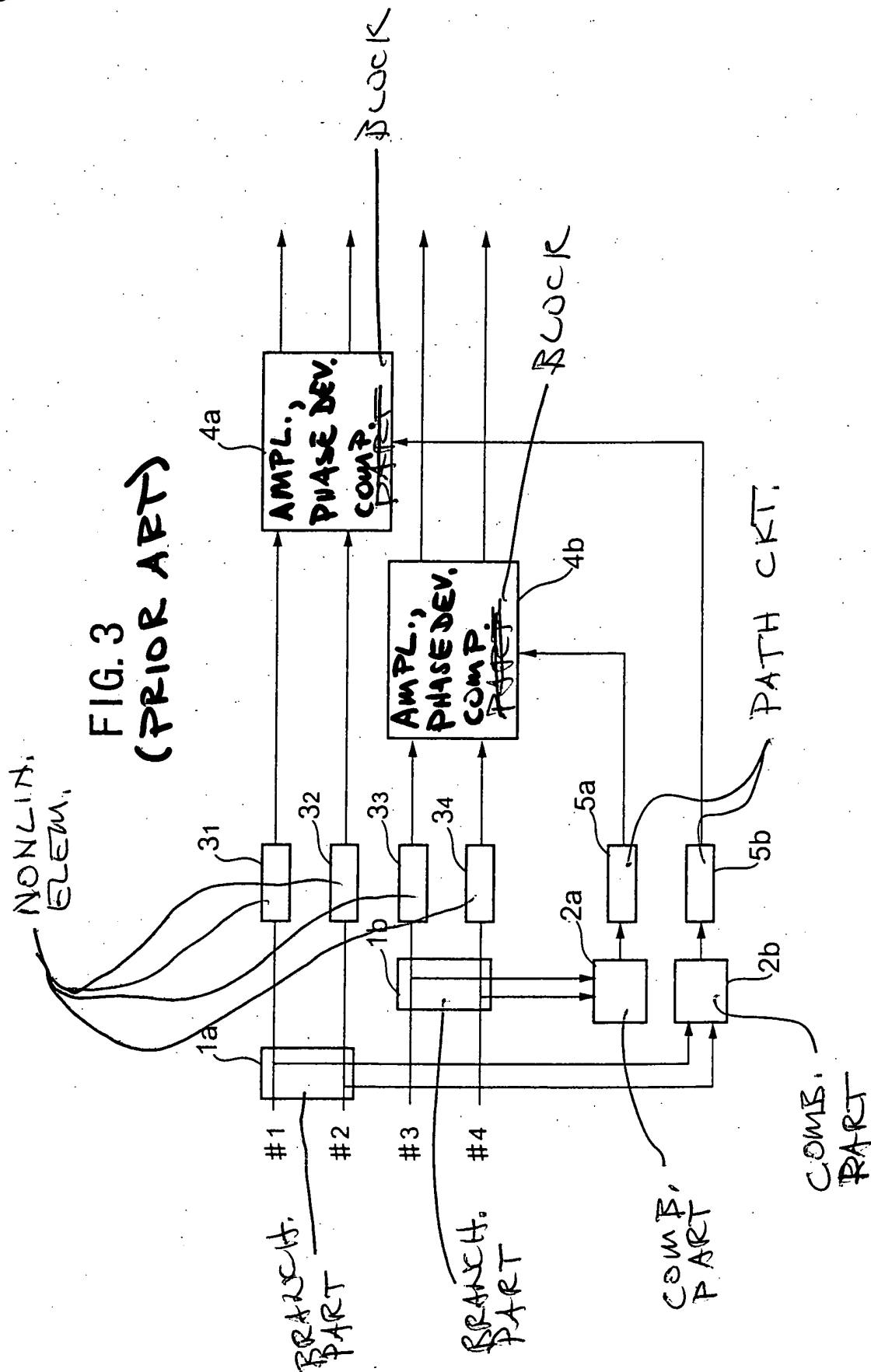


(REPLACEMENT SHEET)

FIG. 2  
(PRIOR ART)



(REPLACEMENT SHEET)



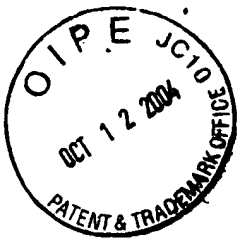
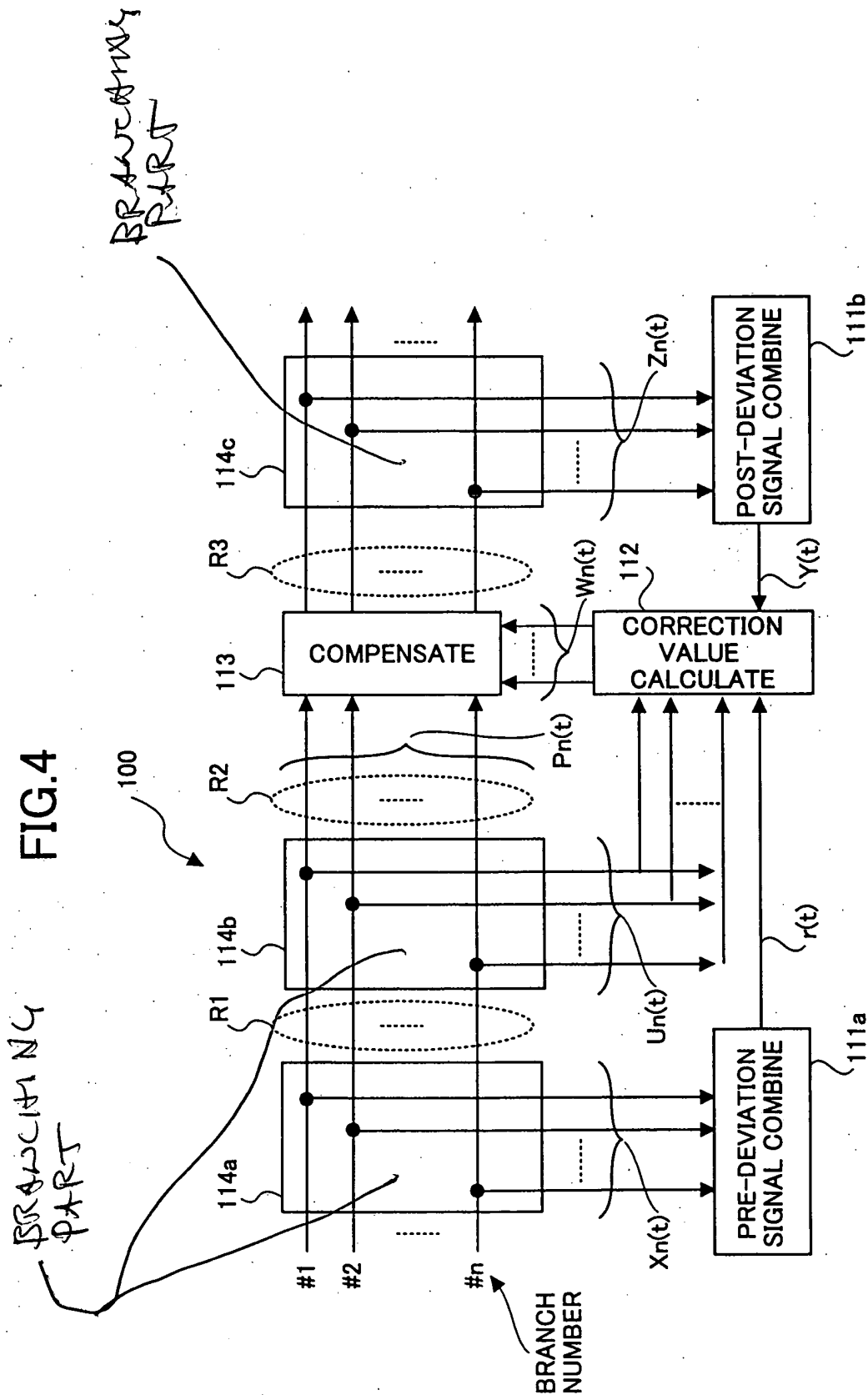
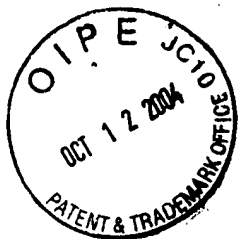


FIG.4







# (REPLACEMENT SHEET)

FIG. 5A

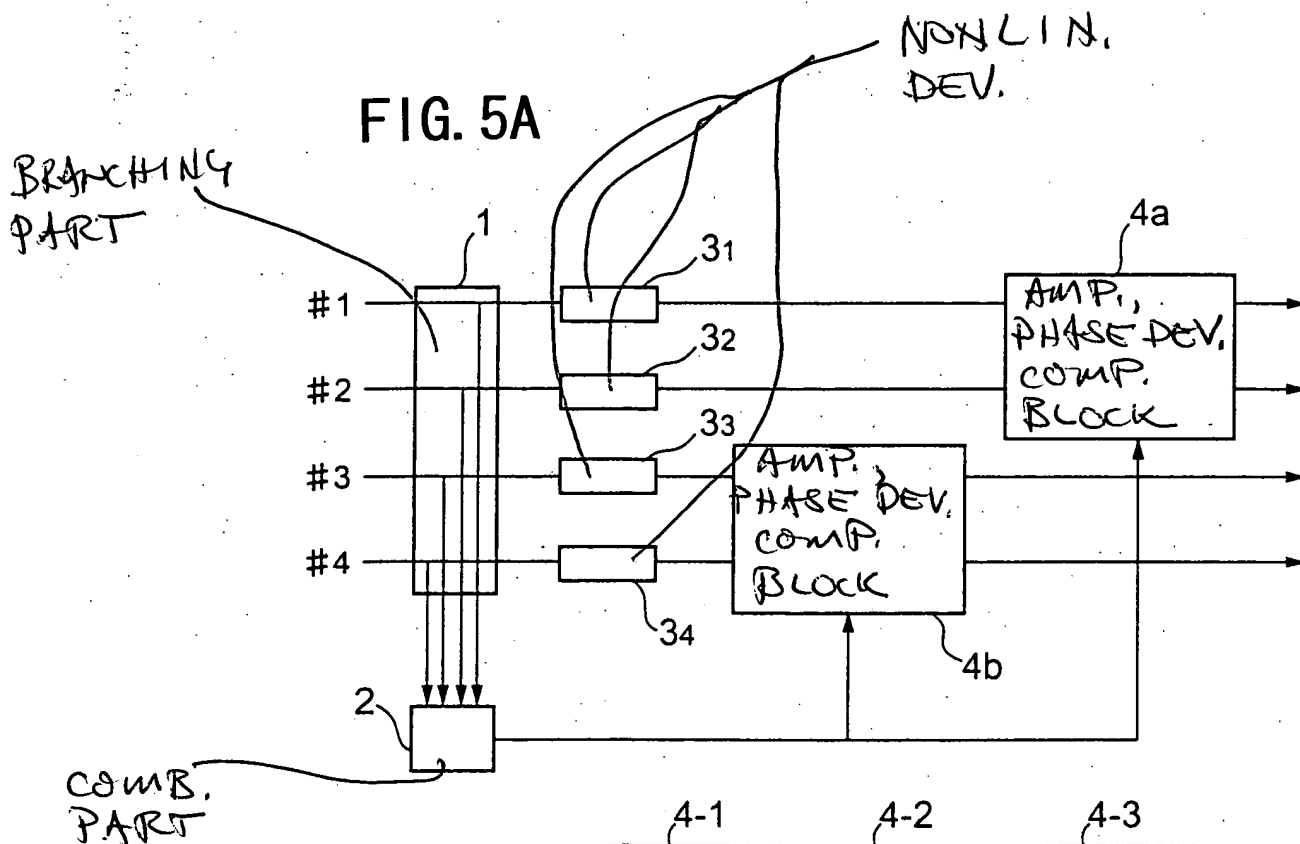
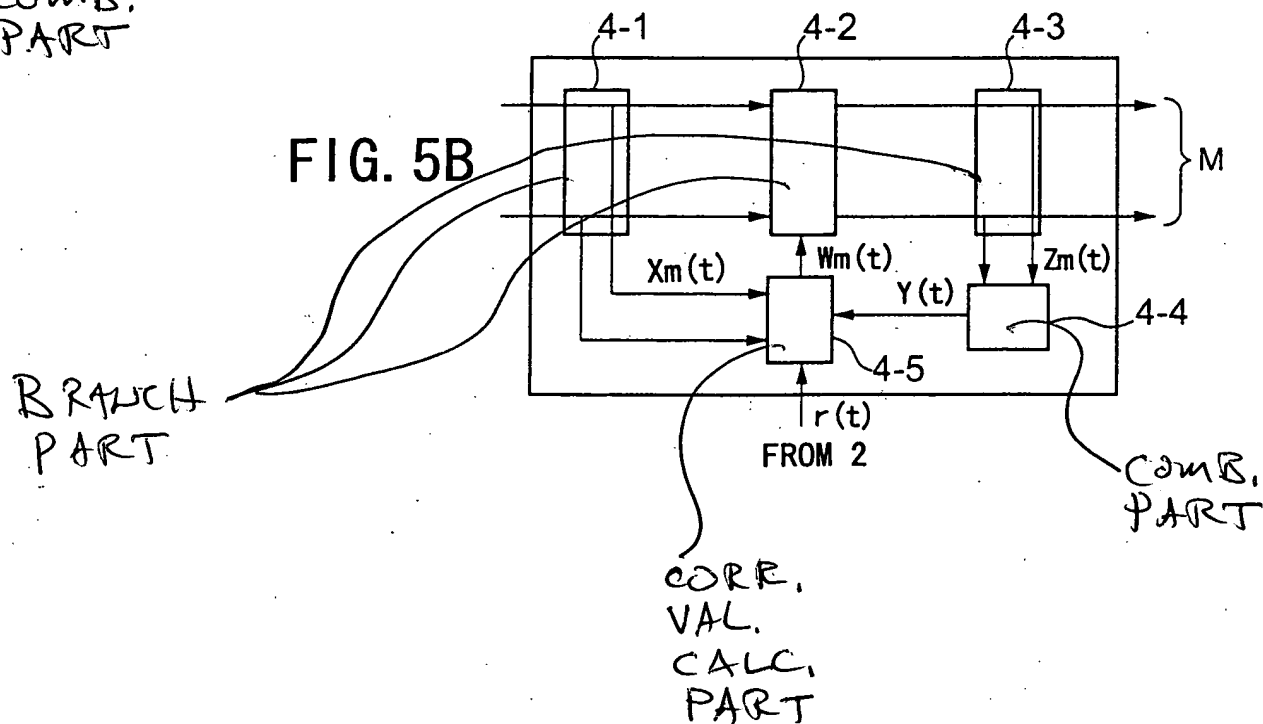


FIG. 5B





# (REPLACEMENT SHEET)

FIG. 6A

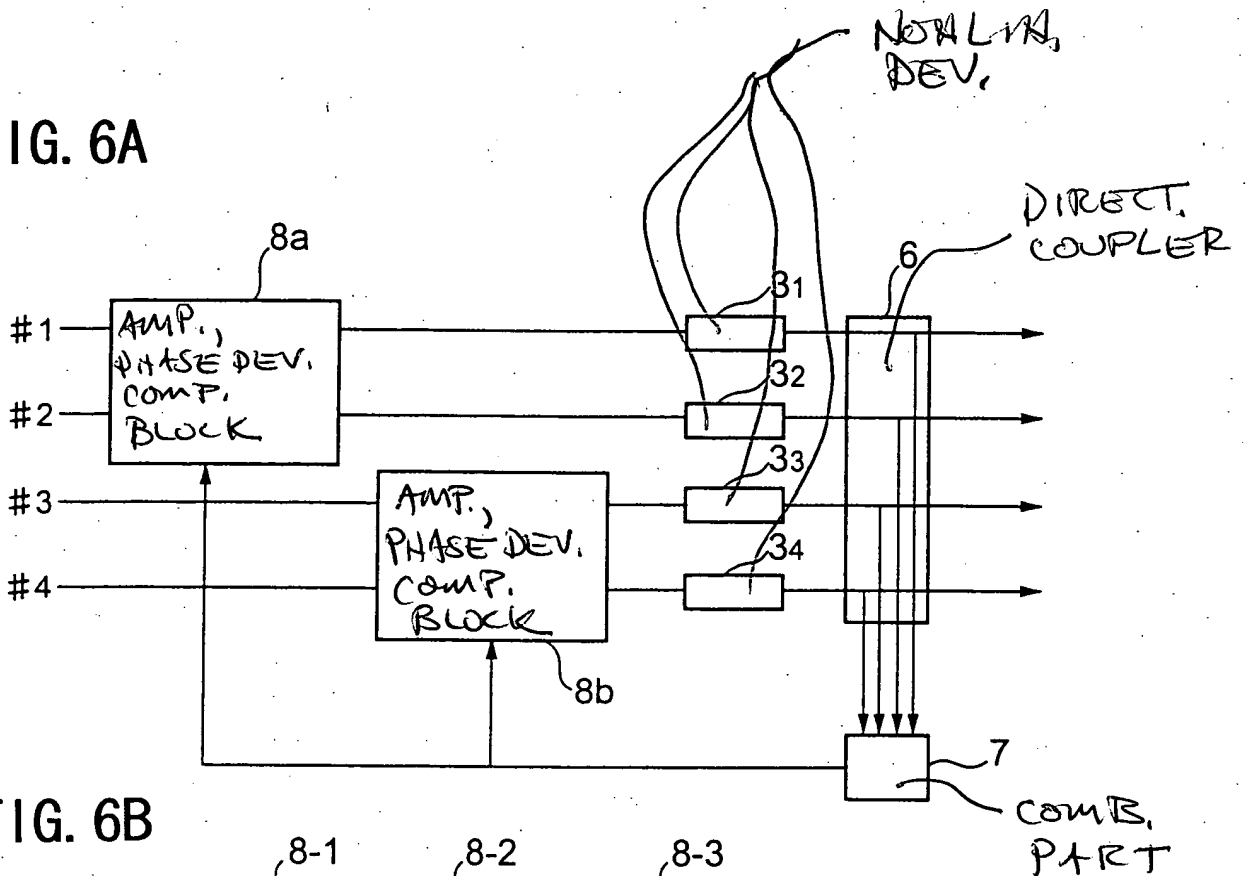
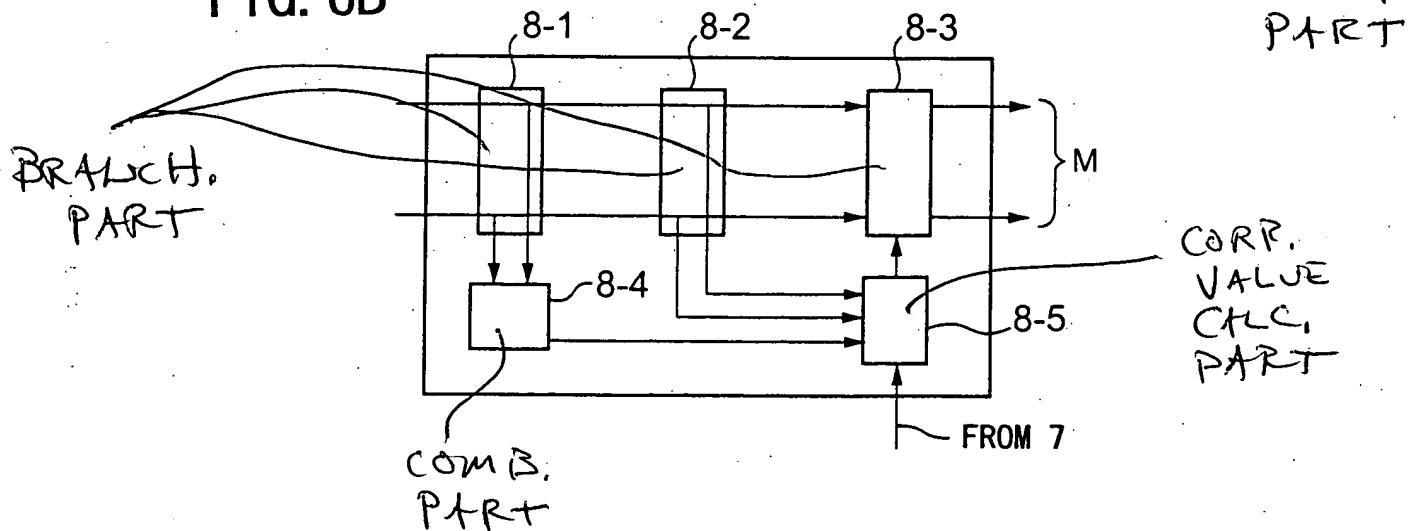


FIG. 6B





# (REPLACEMENT SHEET)

FIG. 7A

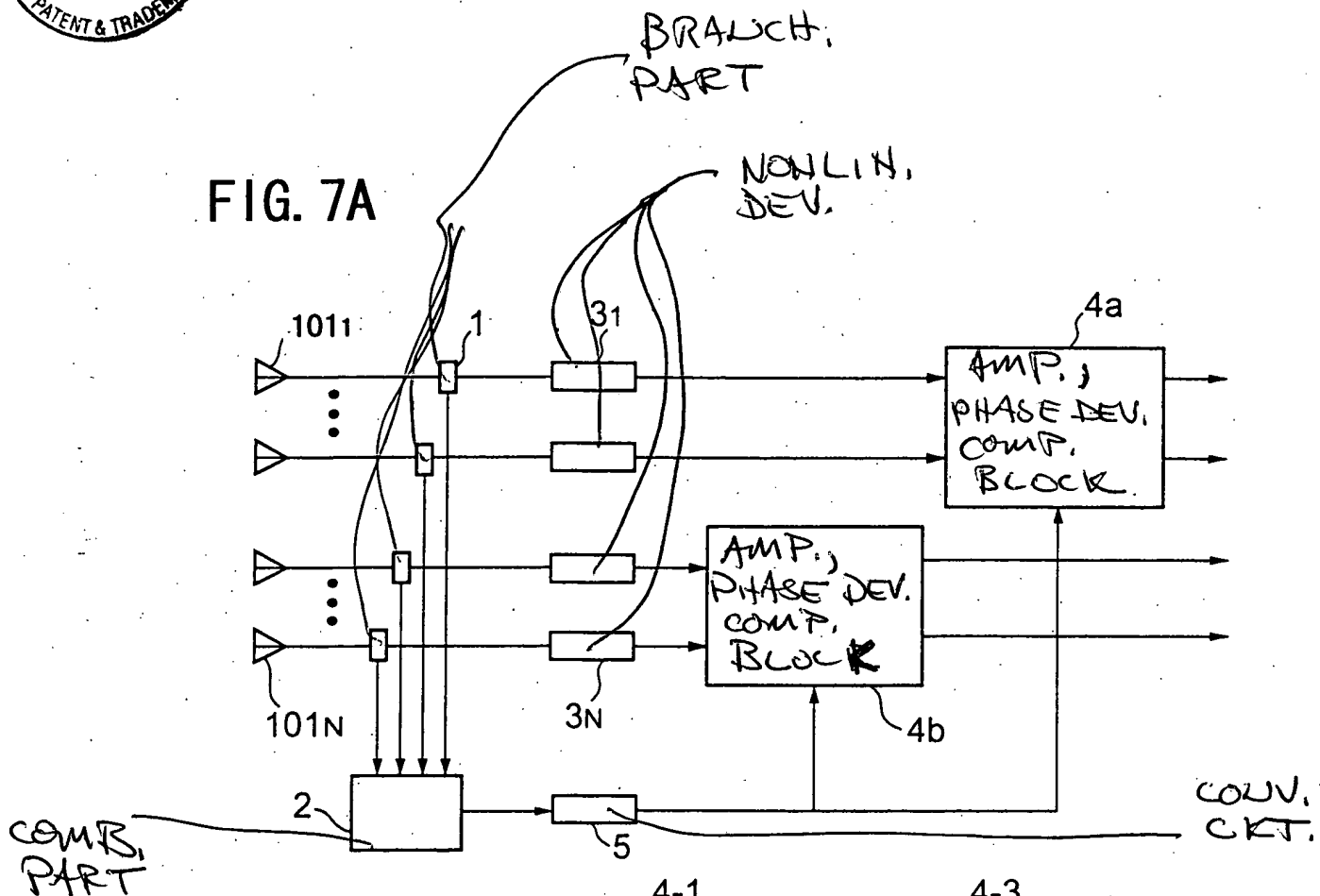
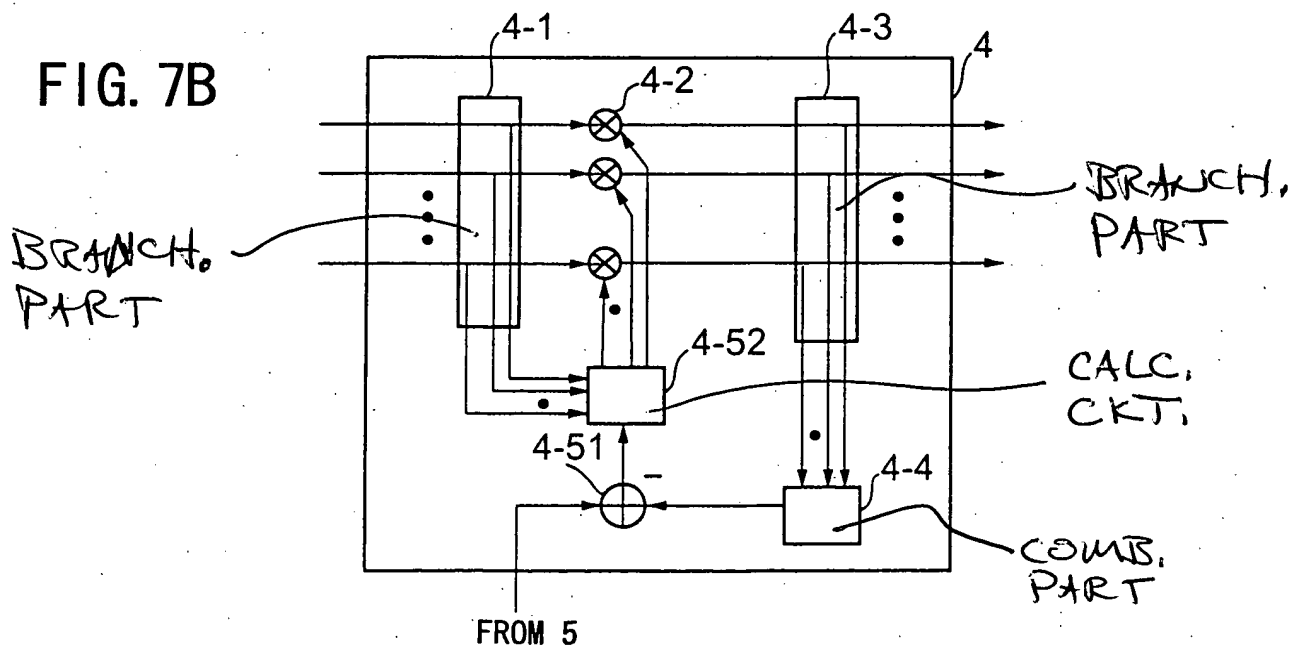


FIG. 7B





**FIG. 8A**

BEAM FORM. NTWK.

51

52

MUX.

AMP., PHASE DEV. COMP. BLOCK

8a

8b

CONV. CRT.

NONLIN. DEVICE

31

3N

61

101N

DIRECT. COUPLER

COMB. PART

7

5

$Y(t)$

**FIG. 8B**

The diagram illustrates a control system with the following components and connections:

- 8-1**: A vertical block representing a combinatorial part, receiving multiple inputs from the left and outputting to block 8-4.
- 8-2**: A vertical block representing a calculation part, receiving inputs from block 8-1 and block 8-52, and outputting to block 8-3.
- 8-3**: A block containing three circular elements with an 'X' inside, representing a calculation or logic stage, receiving inputs from block 8-2 and block 8-52.
- 8-4**: A block representing a combinatorial part, receiving inputs from block 8-1 and block 8-52, and outputting to block 8-51.
- 8-51**: A circular element with a '+' sign, representing a summing junction, receiving inputs from block 8-4 and block 8-52.
- 8-52**: A block representing a calculation part, receiving inputs from block 8-2 and block 8-51, and outputting to block 8-3.
- 8**: A block representing a calculation part, receiving inputs from block 8-3 and block 8-52, and outputting to block 8-51.
- 8-5**: A block representing a calculation part, receiving inputs from block 8-3 and block 8-52, and outputting to block 8-51.

Handwritten annotations include:

- "BRANCH PART" with an arrow pointing to the input lines of block 8-1.
- "COMB. PART" with an arrow pointing to block 8-4.
- "CALC. CKT." with an arrow pointing to block 8-52.

Signal labels include:

- $r(t)$ : Input signal to block 8-4.
- $e(t)$ : Error signal input to block 8-51.
- $y(t)$ : Output signal from block 8-51.

FROM 5



# (REPLACEMENT SHEET)

FIG. 9

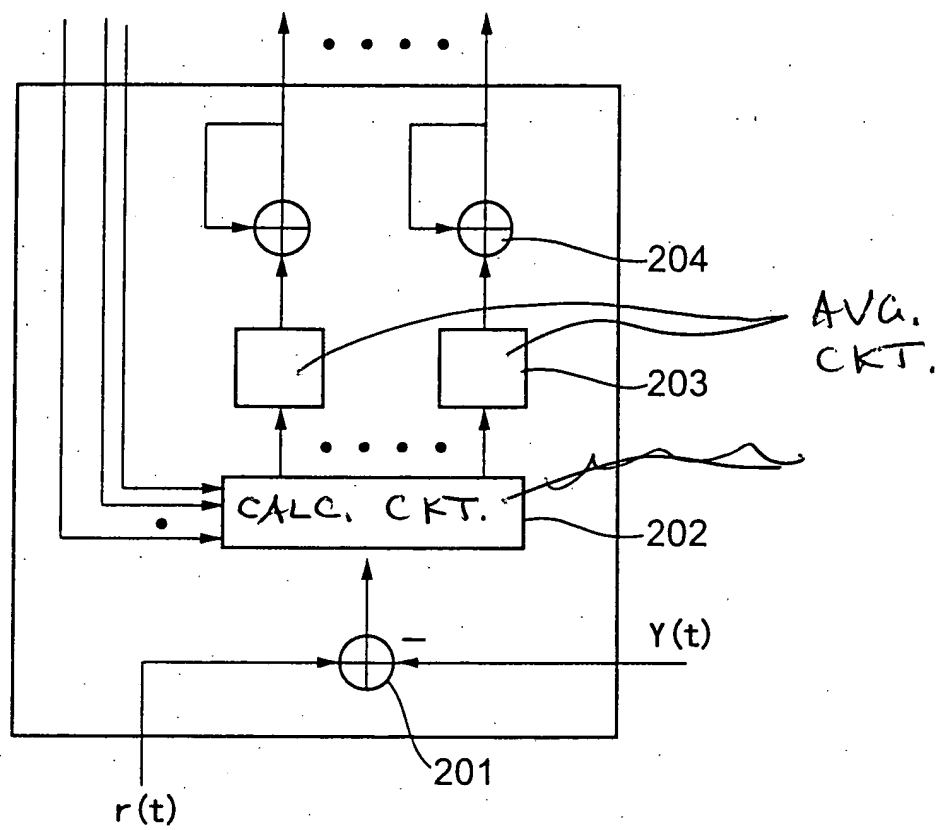
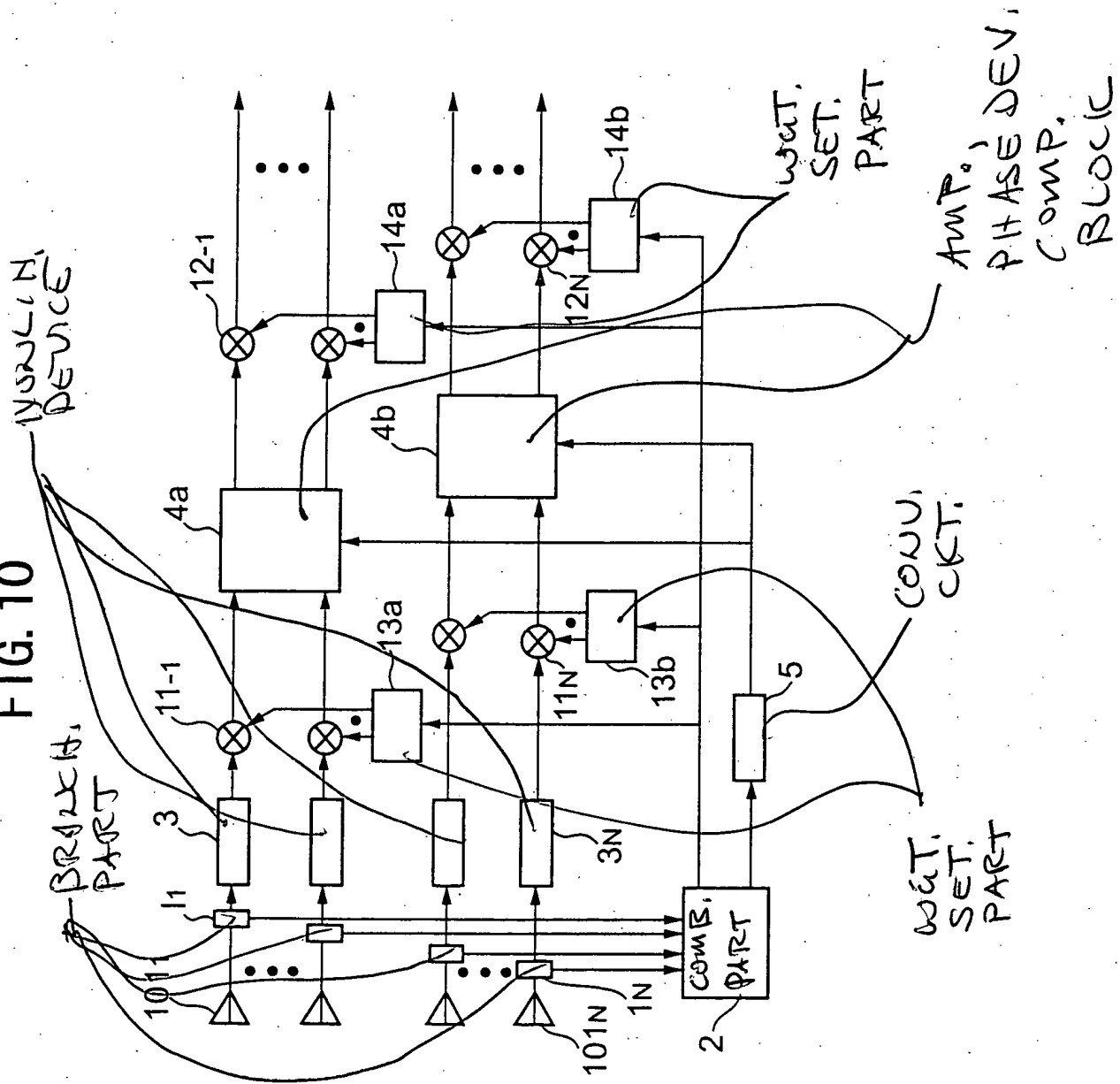




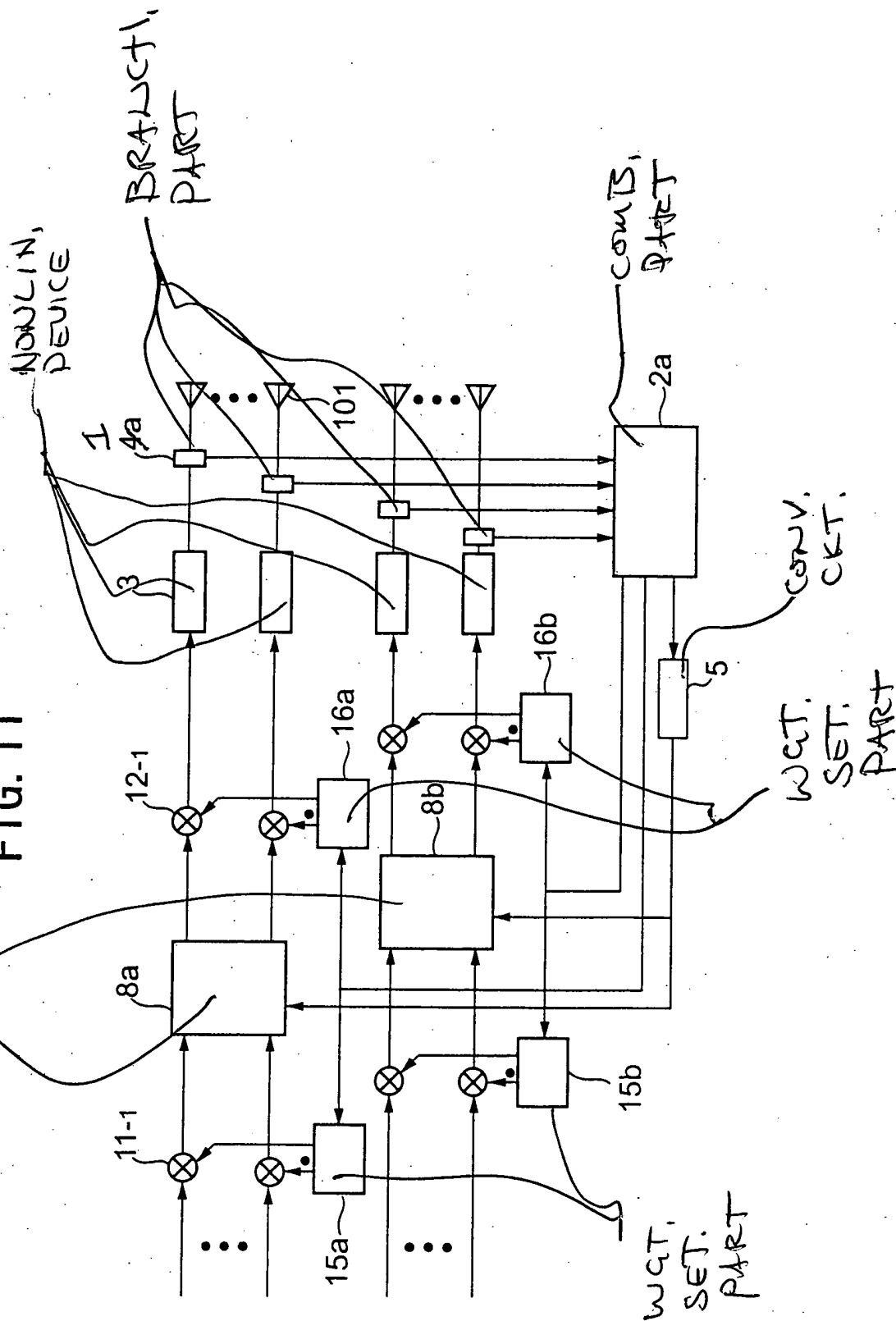
FIG. 10



(REPLACEMENT SHEET)

AMP.  
 PHASE DEV.  
 COMP.  
 BLOCK

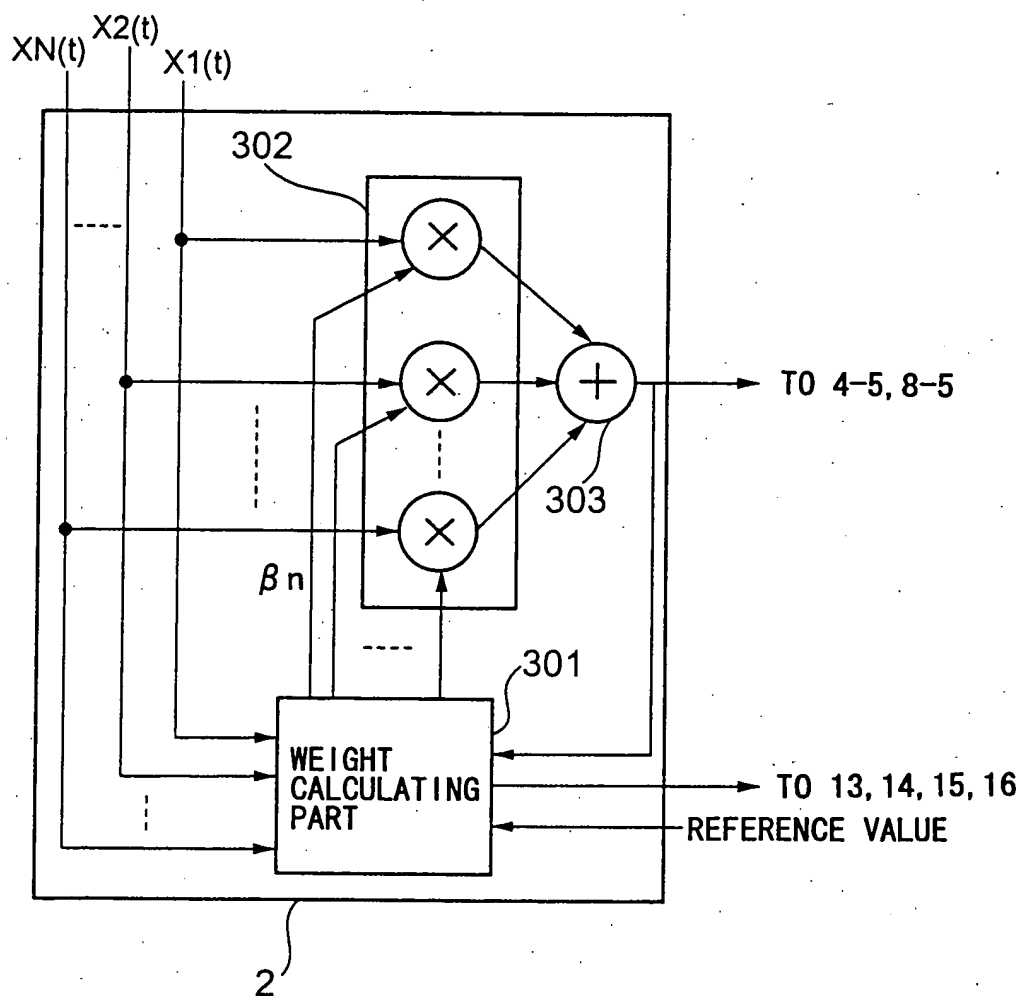
FIG. 11





(REPLACEMENT SHEET)

FIG. 12

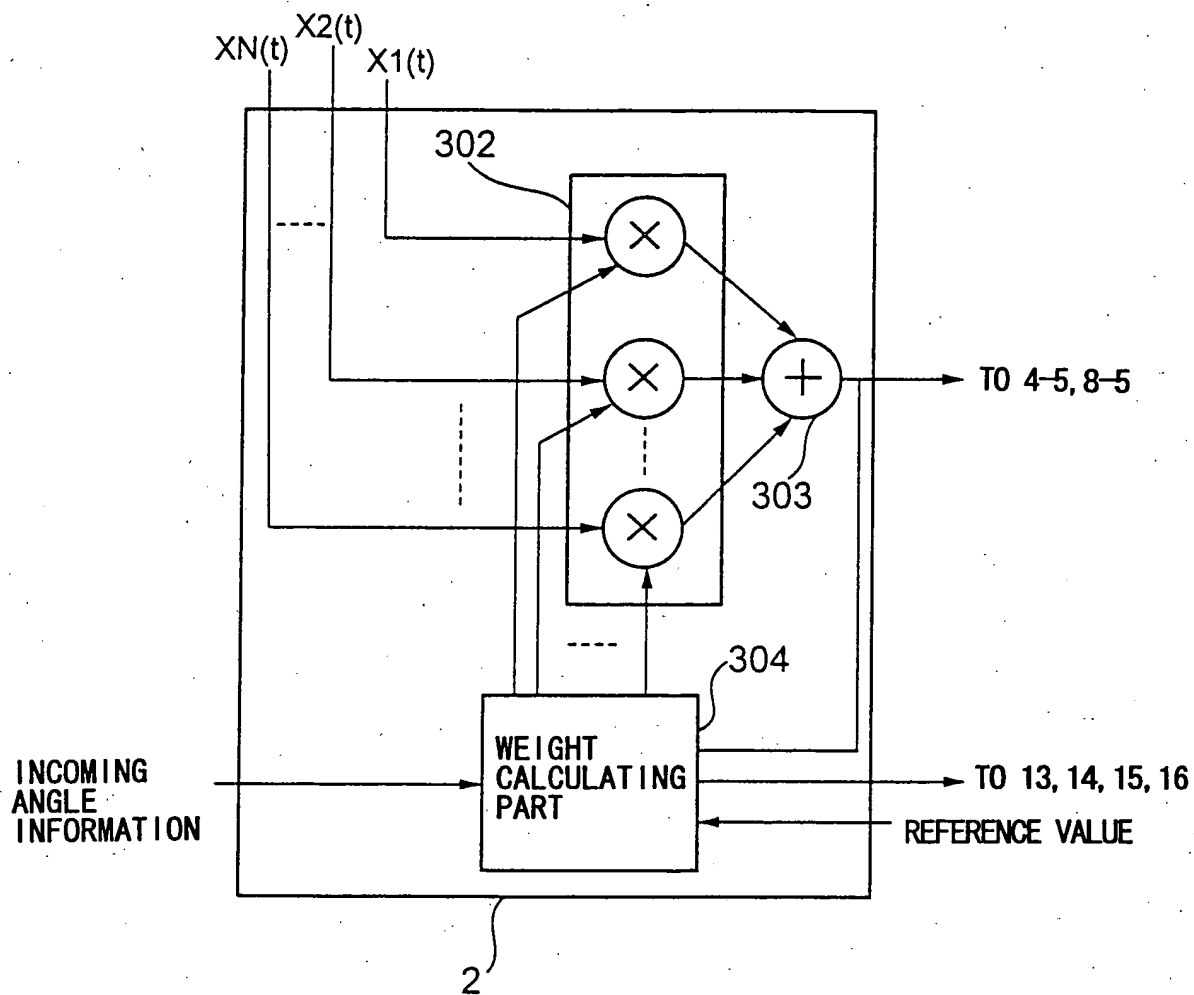






# (REPLACEMENT SHEET)

FIG. 13





# (REPLACEMENT SHEET)

FIG. 14A

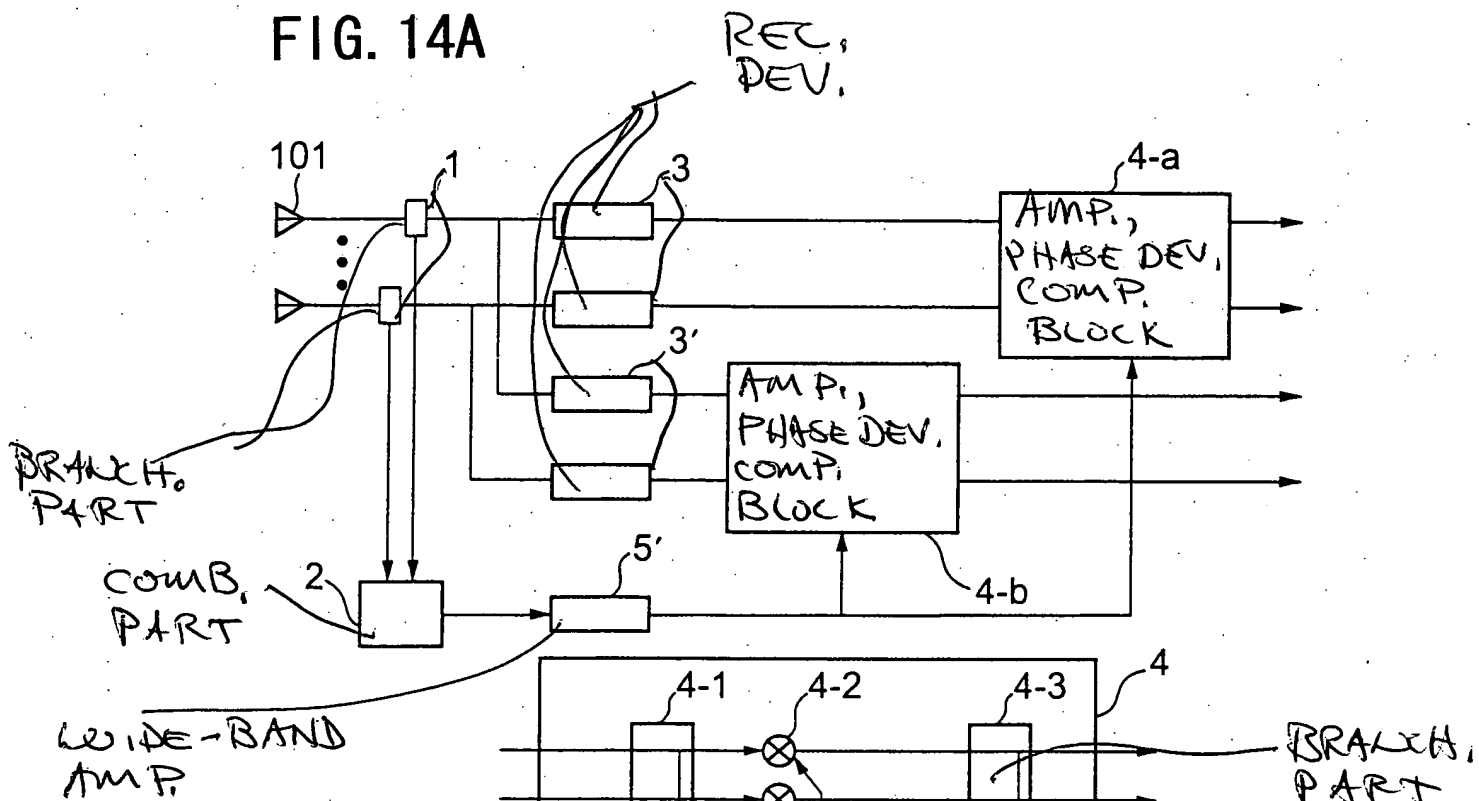


FIG. 14B

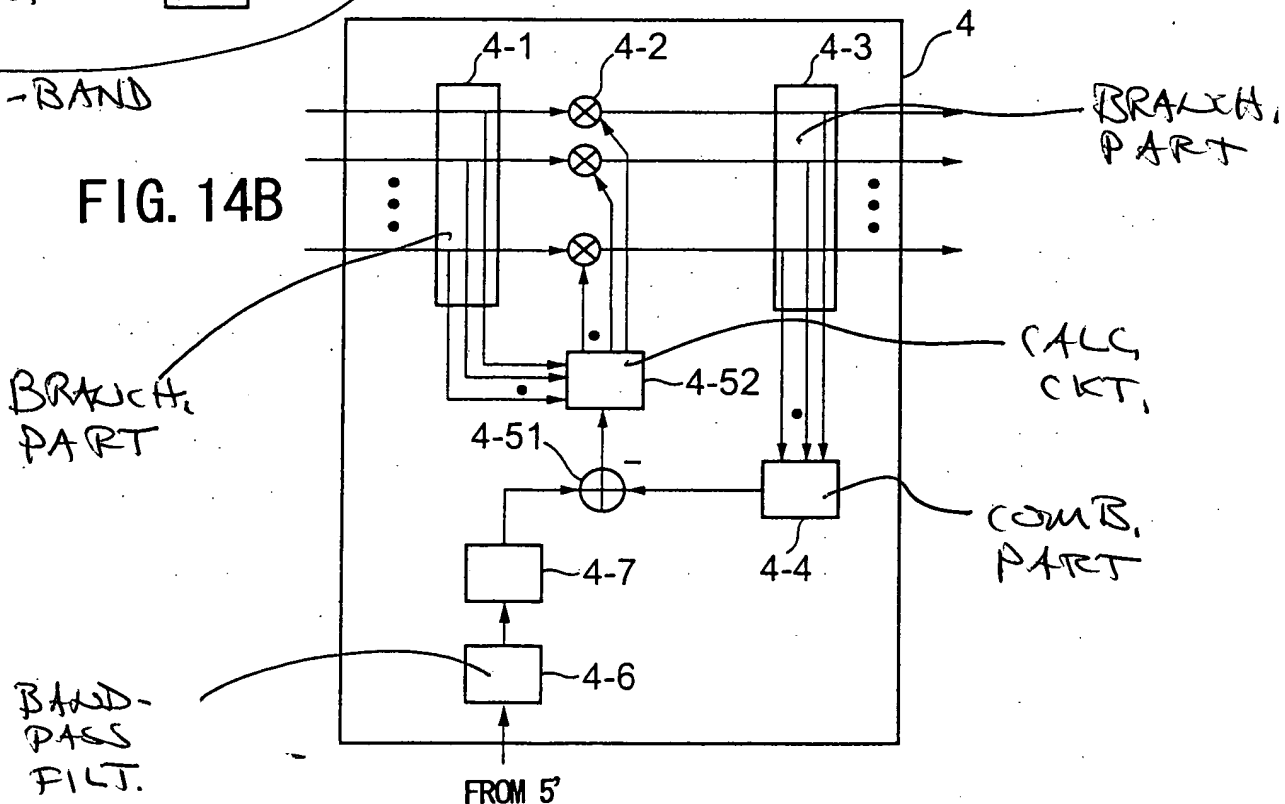




FIG. 15B

